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February 22, 2016

Mr. Mike Romero
Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232-4100

RE: U.S. Environmental Protection Agency Draft Feasibility Study
Principal Threat Waste Areas
Kinder Morgan Liquids Terminals, LLC
Linnton Terminal

Dear Mr. Romero:

We are responding to the DEQ's October 9, 2015, comments on the U.S. Environmental Protection Agency draft Feasibility Study (Draft FS) for the Portland Harbor Superfund Site (DEQ Comments). In DEQ's comments on Section 3.2.1 regarding the identification of Principle Threat Waste (PTW) areas, DEQ suggests that additional areas, such as Kinder Morgan's Linnton Terminal, be identified as having PTW based on the presence of nonaqueous phase liquid (NAPL) (see DEQ Comments, page 6). DEQ also states on page 7 that:

"Kinder Morgan Linnton (RM 4.2 or so) has a small area of LNAPL in the beach sediments outside the barrier wall. The area was characterized in the 10/13/11 *Focused Bank Soil investigation Tech Memo*. Follow-up work was done to evaluate risk to pore water."

The beach sediments at the Linnton Terminal should not be identified as PTW. As defined in EPA's 1991 guidance on PTW, EPA treats NAPL as a PTW if the NAPL constitutes a **source material that is liquid, mobile, and highly toxic** (EPA, 1991). The guidance defines NAPL as a source material if NAPL is present as "pools" or "floating on groundwater." The guidance stresses that the mobility of a highly toxic source material and its ability to migrate determines whether a material is a principal or a low-level threat waste (EPA, 1991).

Further, this definition of NAPL as a PTW is confirmed in Section 3.1 of the Draft FS, which defines source material and PTW as follows:

"Source material is defined as material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to groundwater, to surface water, to air or acts as a source for direct exposure. Further, principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably

contained or would present a significant risk to human health or the environment should exposure occur.”

The Draft FS also uses visual trace observations of NAPL, such as “blebs and globules,” to identify highly mobile PTW.

In this instance, a small area of bank soil at the Linnton Terminal is impacted by petroleum hydrocarbons, but there is no presence of NAPL in the bank soils or beach sediments as a mobile free-phase product. This is evidenced by numerous borings installed during several bank soil investigations that did not encounter free-flowing NAPL (see CH2M, 2011; CH2M, 2012a). Kinder Morgan has also conducted multiple LNAPL mobility and transmissivity assessments that show that the hydrocarbon-impacted soils at the site, specifically in the area around the barrier wall, contain highly weathered NAPL only at residual concentrations. The transmissivity of the residual hydrocarbons is very low and well below recovery endpoints as defined by the Interstate Technology & Regulatory Council (ITRC, 2009; see also CH2M, 2015). In addition, since the installation of the barrier wall and the accompanying groundwater extraction system in 2011 and 2012, there have been no visible seeps, globules, or free-flowing product observed in or on the bank or beach sediments. Based on available site data and EPA’s definitions of PTW, the hydrocarbon-impacted bank soils at Linnton cannot be categorized as mobile or as PTW.

Because the hydrocarbon material is highly weathered and not mobile, it also cannot be considered toxic. Kinder Morgan performed an assessment to determine if the hydrocarbon-impacted soil within the bank soils at the Linnton Terminal is a source of contamination to the Willamette River via the groundwater pathway (CH2M, 2012b). The assessment involved performing a conservative partitioning analysis to estimate hydrocarbon concentrations in pore water that resulted from groundwater coming into contact with impacted bank soils and migrating to the river. Estimated pore water concentrations were below screening-level values for all hydrocarbon compounds, thus indicating that the bank soils do not pose a threat to the Willamette River. The partitioning analysis was conservative in that it assumed that hydrocarbon compounds partitioned between fresh petroleum product and pore water. The hydrocarbon material present in the Linnton Terminal bank soils is aged and highly weathered, and the partitioning of highly weathered petroleum into pore water is significantly less than the partitioning of fresh petroleum into pore water. Further, the analysis used only maximum hydrocarbon concentrations collected from the most impacted bank soils. The analysis showed that the weathered hydrocarbons present within the bank soil are not highly toxic, and therefore are not a PTW as defined by EPA.

Based on the analyses and characterizations performed on the beach sediments at Linnton as stated above and in the referenced reports, it is incorrect to identify the beach sediments at the Kinder Morgan Linnton Terminal as PTW. The characteristics of these sediments do not fall within the definition or the intent of the EPA PTW guidance, and identifying these sediments as PTW is not consistent with the approach that EPA has taken in the Draft FS to identify PTW source materials.

Kinder Morgan therefore requests that DEQ retract its recommendation to EPA that the final FS should categorize Linnton beach sediments as PTW. As you are aware, the Linnton Terminal has been fully characterized and the conceptual site model is well understood. Kinder Morgan has implemented extensive source control measures, including installation of a 216-foot-long, 30-foot-deep sheet pile barrier wall and seven associated extraction wells, to prevent migration of NAPL and dissolved groundwater from upland areas to the Willamette River. Frequent monitoring results of the impacted area and weekly observations continue to demonstrate the effectiveness of upland source control. For further reference, the recently submitted (December 2015) *Kinder Morgan Linnton Terminal*

Groundwater and Bank Soil Source Control Evaluation Report (CH2M, 2015) contains a summary of site conditions.

Kinder Morgan appreciates the opportunity to provide input and clarification regarding the nature of impacts along the bank and beach adjacent to the Linnton Terminal. If you have any questions, you may contact me at 503-220-1241 or robert_truedinger@kindermorgan.com.

Sincerely,

A handwritten signature in black ink, reading "Robert Truedinger". The signature is written in a cursive, flowing style with a prominent initial "R".

Robert Truedinger
KINDER MORGAN LIQUIDS TERMINALS, LLC

cc: Kristine Koch, Remedial Project Manager, U.S. EPA

References

CH2M HILL Engineers, Inc. (CH2M). 2011. *Subsurface Bank Soils Investigation Results*. Prepared for Kinder Morgan Liquid Terminals, LLC. March 2011.

CH2M HILL Engineers, Inc. (CH2M). 2012a. *Kinder Morgan Linnton Terminal – Phase 2 Bank Soils Investigation Results*. Prepared for Michael Romero at the Oregon Department of Environmental Quality. March 28, 2012.

CH2M HILL Engineers, Inc. (CH2M). 2012b. *Estimated Pore Water Concentrations from Bank Soil Samples – KMEP Linnton Terminal*. Prepared for Michael Romero at the Oregon Department of Environmental Quality. October 15, 2012.

CH2M HILL Engineers, Inc. (CH2M). 2015. *Groundwater and Bank Soil Source Control Evaluation Report, Kinder Morgan Linnton Terminal*. Oregon Department of Environmental Quality ESCI No. 1096. December 2015.

Interstate Technology & Regulatory Council (ITRC), LNAPLs Team. 2009. *Evaluating Natural Source Zone Depletion at Sites with LNAPL*. LNAPL-1. Washington, D.C. April. www.itrcweb.org. Accessed March 2015.

United States Environmental Protection Agency (EPA). 1991. *A Guide to Principle Threat and Low level Threat Wastes*. Superfund Publication 9380.3-06FS. November 1991.